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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/802,415

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Dai Kimura

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EXAMINER

CUMMING, WILLIAM D

ART UNIT

PAPER NUMBER

2617

MAIL DATE

DELIVERY MODE

10/05/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/802,415	Applicant(s) KIMURA, DAI	
	Examiner WILLIAM D. CUMMING	Art Unit 2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-7 and 11-18 is/are allowed.
- 6) ☒ Claim(s) 8 and 10 is/are rejected.
- 7) ☒ Claim(s) 9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 8 and 10 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by **Kim, et al.**

Kim, et al disclose a radio communication apparatus (figure 4) in a radio packet communication system (*"A transmission/reception apparatus and method for performing packet retransmission considering a channel environment in a CDMA mobile communication system. Upon receiving a retransmission request from a receiver,*

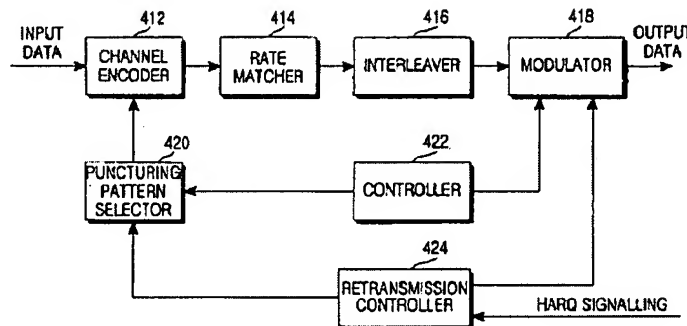


FIG. 4

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the apparatus and method selects a modulation type to be used according to a condition of a transmission channel, and changes the previously used puncturing pattern in order to output the proper number of coded bits for the selected modulation type.”) for feeding back radio link quality information, which has been measured on a packet receiving side, to a transmitting side and adaptively controlling a modulation scheme and/or encoding rate on the transmitting side using the quality information (“AMCS is a technique for adaptively changing a modulation type and a coding rate of a channel encoder according to a variation in the downlink channel environment. Commonly, to detect the downlink channel environment, a UE measures a signal-to-noise ratio (SNR) and transmits the SNR information to a Node B over an uplink. The Node B predicts the downlink channel environment based on the SNR information, and designates proper modulation type and coding rate according to the

predicted value. The HSDPA and 1xEV-DV consider using the modulations of QPSK (Quadrature Phase Shift Keying), 8PSK (8-ary Phase Shift Keying), 16QAM (16-ary Quadrature Amplitude Modulation) and 64QAM (64-ary Quadrature Amplitude Modulation), and the coding rates of 1/2 and 3/4. Therefore, an AMCS system applies the high-order modulations (16QAM and 64QAM) and the high coding rate 3/4 to the UE located in the vicinity of the Node B, having a good channel environment, and applies the low-order modulations (QPSK and 8PSK) and the low coding rate 1/2 to the UE located in a cell boundary. In addition, compared with the existing high-speed power control method, AMCS decreases an interference signal, thereby improving the average system performance"),

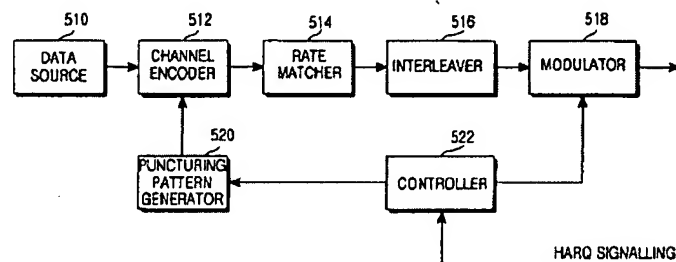


FIG. 5

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comprising: estimating means for estimating throughput on the packet receiving side ("A second method is to determine the modulation

type at a transmitter. In this method, the transmitter independently estimates a condition of the transmission channel and determines a modulation type according to the estimated condition of the transmission channel. When using this method, the retransmission controller 424 extends its role to a process of estimating the condition of the transmission channel. The condition of the transmission channel can be estimated by the HARQ control signal provided from the receiver. The transmitter informs the receiver of the determined modulation type so that the receiver can cope with the data transmitted according the changed modulation type.")

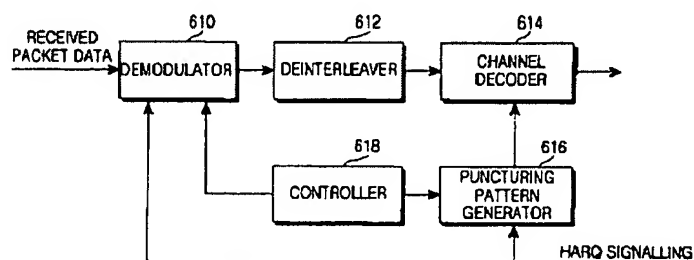


FIG. 6

Control means for adaptively controlling a target error rate so as to maximize the throughput ("Referring to FIG. 1, the channel encoder 112 is comprised of an encoder and a puncturer. When input data that is proper

to a data rate is applied to an input terminal of the channel encoder 112, the encoder performs encoding in order to decrease a transmission error rate. The puncturer performs puncturing on the coded bits from the encoder according to a puncturing pattern. The puncturing pattern is provided from a puncturing pattern selector 120 according to a coding rate and a modulation order previously determined by a controller 122. The coded bits punctured by the puncturer are serially provided to an interleaver 116. The interleaver 116 interleaves the punctured coded bits. The interleaver 116, a device for coping with fading that occurs in a radio channel, disperses bits constituting one information word (e.g., one word of a voice signal) thereby to decrease a probability that one information word will be lost at the same time. The interleaved signal by the interleaver 116 is modulated by the modulator 118 by a given symbol mapping method, and transmitted over a radio channel. The symbol mapping method performed in the modulator 118 is determined according to a modulation type previously determined by the controller 122. Further, a rate matcher 114 is illustrated in FIG. 1. The rate matcher 114 performs rate matching to the number of bits transmitted over a physical channel by performing puncturing or repetition on systematic bits and parity bits provided from the channel encoder 112."). Means for deciding a modulation scheme and/or encoding rate, in such a manner that average error rate of a packet becomes equal to the target error rate, using the

radio link quality information as well as reception success/failure information reported by the packet receiving side ("A detailed structure of a turbo encoder used as the channel encoder 112 of FIG. 1 is illustrated in FIG. 2. Referring to FIG. 2, the channel encoder 112 includes encoders 212 and 214 with a mother coding rate 1/6, and a puncturer 216. It is well known that a channel coding technique using the turbo encoder shows performance closets to the Shannon limit in terms of a bit error rate (BER) even at a low SNR. Therefore, in the 3GPP and 3GPP2 carrying out standardization on the future mobile communication system for high-speed multimedia data transmission with high reliability, the turbo encoder is adopted as a standard channel encoder of the HSDPA and the 1xEV-DV.");

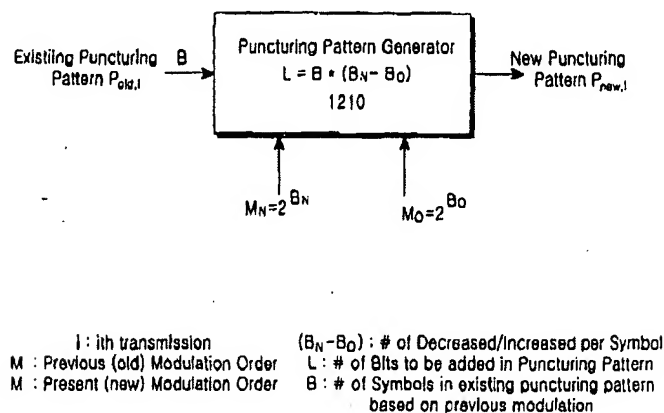


FIG. 7

and means for transmitting a packet based upon the modulation scheme and/or encoding rate decided ("According to a first aspect of the present invention, there is provided a method for generating a retransmission puncturing pattern matrix in order to transmit a packet unit including a stream of symbols and another stream of symbols according to a first modulation type and a second modulation type in response to a retransmission request from a receiver, in a mobile communication system puncturing coded bits from an encoder according to a first puncturing pattern matrix based on the first modulation type, and transmitting a packet unit including a stream of symbols obtained by symbol mapping the punctured coded bits by the first modulation type, from a transmitter to the receiver. The method comprises: calculating the number of bits per a puncturing pattern matrix, to be increased or decreased, by multiplying a difference $B_{sub.N} - B_{sub.0}$ between the number $B_{sub.N}$ of coded bits that can be mapped to one symbol by the second modulation type and the number $B_{sub.0}$ of coded bits that can be mapped to *one symbol by the first modulation type, by the number B of symbols mapped to bits that are not punctured according to the first puncturing pattern matrix based on the first modulation type; generating a second puncturing pattern matrix based on the number of bits per the puncturing pattern matrix; and generating the retransmission puncturing pattern matrix by combining the first*

puncturing pattern matrix with the second puncturing pattern matrix.”)

Allowable Subject Matter

4. Claims 1-7 and 11-18 are allowed.
5. As allowable subject matter has been indicated, applicant's reply must either comply with all formal requirements or specifically traverse each requirement not complied with. See 37 CFR 1.111(b) and MPEP § 707.07(a).
6. Claim 9 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
7. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record does not disclose or make obvious the claimed radio communication apparatus in a radio packet communication system for feeding back radio link quality information, which has been measured on a packet receiving side, to a transmitting side and adaptively controlling a modulation scheme and/or encoding rate on the transmitting side using the quality information, comprising an estimating means for estimating a variation-with-time characteristic of the radio link quality using the radio link quality

information reported by the packet receiving side. The changeover means for adaptively changing over a target error rate using the variation-with-time characteristic. The deciding means for deciding a modulation scheme and/or encoding rate, in such a manner that packet error rate becomes equal to the target error rate, using the radio link quality information as well as reception success/failure information reported by the packet receiving side. and the means for transmitting a packet based upon the modulation scheme and/or encoding rate decided.

Response to Arguments

8. Applicant's arguments filed July 6, 2007 have been fully considered but they are not persuasive.

Anticipatory reference need not duplicate, word for word, what is in claims; anticipation can occur when claimed limitation is "*inherent*" or otherwise implicit in relevant reference (Standard Havens Products Incorporated v. Gencor Industries Incorporated, 21 USPQ2d 1321). During examination before the Patent and Trademark Office, claims must be given their broadest reasonable interpretation and limitations from the specification may not be imputed to the claims (Ex parte Akamatsu, 22 USPQ2d, 1918; In re Zletz, 13 USPQ2d 1320, In re Priest, 199 USPQ 11). In response to Applicant's argument, the law of anticipation requires that a distinction be made between the invention described or taught and the invention claimed. It does not require that the reference

"teach" what the subject patent teaches. Assuming that a reference is properly "prior art," it is only necessary that the claims under consideration "read on" something disclosed in the reference, i.e., all limitations of the claim are found in the reference, or "fully met" by it. It was held in In re Donohue, 226 USPQ 619, that, *"It is well settled that prior art under 35 USC §102(b) must sufficiently describe the claimed invention to have placed the public in possession of it...Such possession is effected if one of ordinary skill in the art could have combine the description of the invention with his own knowledge to make the claimed invention."* Clear inference to the artisan must be considered, In re Preda, 159 USPQ 342. A prior art reference must be considered together with the knowledge of one of ordinary skill in the pertinent art, In re Samour, 197 USPQ 1. During patent examination, the pending claims must be *"given the broadest reasonable interpretation consistent with the specification."* Claim term is not limited to single embodiment disclosed in specification, since number of embodiments disclosed does not determine meaning of the claim term, and applicant cannot overcome *"heavy presumption"* that term takes on its ordinary meaning simply by pointing to preferred embodiment (Teleflex Inc. v. Ficosa North America Corp., CA FC, 6/21/02, 63 USPQ2d 1374). Applicant always has the opportunity to amend the claims during prosecution and broad interpretation by the examiner reduces the possibility that the claim, once issued, will be interpreted more broadly than is justified. In re Prater, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-51 (CCPA1969). *"Arguments that the alleged anticipatory*

prior art is nonanalogous art' or teaches away from the invention' or is not recognized as solving the problem solved by the claimed invention, [are] not germane' to a rejection under section 102." Twin Disc, Inc. v. United States, 231 USPQ 417, 424 (Cl. Ct. 1986) (quoting In re Self, 671 F.2d 1344, 213 USPQ 1, 7 (CCPA 1982)). A reference is no less anticipatory if, after disclosing the invention, the reference then disparages it. The question whether a reference "teaches away" from the invention is inapplicable to an anticipation analysis. Celeritas Technologies Ltd. v. Rockwell International Corp., 150 F.3d 1354, 1361, 47 USPQ2d 1516, 1522-23 (Fed. Cir.1998).

Kim, et al clearly disclose estimating means for estimating throughput on the packet receiving side, "A second method is to determine the modulation type at a transmitter. In this method, the transmitter independently estimates a condition of the transmission channel and determines a modulation type according to the **estimated** condition of the transmission channel. When using this method, the retransmission controller 424 extends its role to a process of estimating the condition of the transmission channel. The condition of the transmission channel can be estimated by the HARQ control signal provided from the receiver. The transmitter informs the receiver of the determined modulation type so that the receiver can cope with the data transmitted according the changed modulation type."

Kim, et al also disclose control means for adaptively controlling a target error rate so as to maximize the throughput "Referring to FIG. 1, the channel encoder 112 is comprised of an encoder and a puncturer. When input data that is proper to a data rate is applied to an input terminal of the channel encoder 112, the encoder performs encoding in order to decrease a transmission error rate. The puncturer performs puncturing on the coded bits from the encoder according to a puncturing pattern. The puncturing pattern is provided from a puncturing pattern selector 120 according to a coding rate and a modulation order previously determined by a controller 122. The coded bits punctured by the puncturer are serially provided to an interleaver 116. The interleaver 116 interleaves the punctured coded bits. The interleaver 116, a device for coping with fading that occurs in a radio channel, disperses bits constituting one information word (e.g., one word of a voice signal) thereby to decrease a probability that one information word will be lost at the same time. The interleaved signal by the interleaver 116 is modulated by the modulator 118 by a given symbol mapping method, and transmitted over a radio channel. The symbol mapping method performed in the modulator 118 is determined according to a modulation type previously determined by the controller 122. Further, a rate matcher 114 is illustrated in FIG. 1. The rate matcher 114 performs rate matching to the number of bits transmitted over a physical channel by performing puncturing or repetition on systematic bits and parity bits provided from the channel encoder 112."

The plain meaning of throughput is output or production, which **Kim, et al** clearly disclose. If applicant claims his invention so broadly, it should not come to a surprise that the examiner examines the claims just as broadly.

This application is **NOT** in form for allowance.

Conclusion

9. If applicants wish to request for an interview, an "*Applicant Initiated Interview Request*" form (PTOL-413A) should be submitted to the examiner prior to the interview in order to permit the examiner to prepare in advance for the interview and to focus on the issues to be discussed. This form should identify the participants of the interview, the proposed date of the interview, whether the interview will be personal, telephonic, or video conference, and should include a brief description of the issues to be discussed. A copy of the completed "*Applicant Initiated Interview Request*" form should be attached to the Interview Summary form, PTOL-413 at the completion of the interview and a copy or applicant's representative.

10. If applicants request an interview after this **final rejection**, prior to the interview, the intended purpose and content of the interview should be presented briefly, in writing.

Such an interview may be granted if the examiner is convinced that disposal or clarification for appeal may be accomplished with only nominal further consideration.

Interviews merely to **restate arguments** of record or to **discuss new limitations** which would require more than nominal reconsideration or new search will be denied.

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

12. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **WILLIAM D. CUMMING** whose telephone number is 571-272-7861. The examiner can normally be reached on Monday-Thursday, 11:00am-8:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Appiah can be reached on 571-272-7904. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

14. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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